

WHAT IS CLAIMED IS:

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1. An image forming apparatus, comprising:
a storing unit that stores a program in
accordance with which the image forming apparatus
operates;

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an acquiring unit that acquires an update
program from an external source; and

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an updating unit that determines whether an
electronic signature of the update program acquired
by said acquiring unit is authentic and, if the
electronic signature of the acquired update program
is determined to be authentic, updates the program
stored in said storing unit using the acquired update
program.

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2. The image forming apparatus as claimed
in claim 1,

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wherein

said updating unit determines whether the electronic signature of the update program acquired by said acquiring unit is authentic by comparing a message digest generated from the update program
5 acquired by said acquiring unit and a message digest obtained by decrypting the electronic signature of the update program.

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3. The image forming apparatus as claimed in claim 1,

wherein

15 said updating unit updates the program stored in said storing unit with the update program acquired by said acquiring unit, and updates an electronic signature of the program stored in said storing unit with the electronic signature of the
20 update program.

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4. The image forming apparatus as claimed

in claim 1,

wherein

said acquiring unit is an update recording
medium setting unit and the external source is an
5 update recording medium to be set in the update
recording medium setting unit, the update recording
medium storing the update program and the electronic
signature of the update program.

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5. The image forming apparatus as claimed
in claim 1,

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wherein

said acquiring unit is a receiving unit
that receives the update program and the electronic
signature of the update program from the external
source via a network.

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6. The image forming apparatus as claimed
25 in claim 1,

wherein

said storing unit further comprises a recording medium setting unit and a recording medium set therein, the recording medium storing the program.

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7. The image forming apparatus as claimed
10 in claim 1, further comprising:

an activating unit that determines whether the electronic signature of the update program and an electronic signature of a configuration file related to the update program are authentic and, if the
15 electronic signature of the update program and the electronic signature of the configuration file related to the update program are determined to be authentic, activates the updated program,

wherein

20 said acquiring unit further acquires a configuration file and an electronic signature thereof from the external source; and

said activating unit determines whether the electronic signature of the update program and the
25 electronic signature of the configuration file are

authentic and, if the electronic signature of the
update program and the electronic signature of the
configuration file are determined to be authentic,
activates the update program in accordance with the
5 configuration file.

10 8. The image forming apparatus as claimed
in claim 7,
 wherein
 said activating unit determines whether the
electronic signature of the update program is
15 authentic by comparing a message digest generated
from the update program and a message digest obtained
by decrypting the electronic signature of the update
program.

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 9. The image forming apparatus as claimed
in claim 7,
25 wherein

said activating unit determines whether the electronic signature of the configuration file is authentic by comparing a message digest generated from the configuration file and a message digest
5 obtained by decrypting the electronic signature of the configuration file.

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10. The image forming apparatus as claimed in claim 9,

wherein

the electronic signature of the
15 configuration file is generated by encrypting a message digest of the configuration file and identification information of the recording medium.

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11. The image forming apparatus as claimed in claim 10,

wherein

25 the identification information of the

recording medium is a serial ID of the recording medium.

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12. A method of updating a program stored in a recording medium of an image forming apparatus, comprising the steps of:

10 acquiring an update program and an electronic signature thereof;

 determining whether the acquired electronic signature of the update program is authentic; and

 updating, if the acquired electronic
15 signature of the acquired update program is determined to be authentic, the program stored in the recording medium using the acquired update program.

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13. The method as claimed in claim 12, the step of determining whether the acquired electronic signature of the update program is authentic further
25 comprising the steps of:

generating a message digest from the
acquired update program;

obtaining a message digest by decrypting
the acquired electronic signature of the acquired
5 update program; and

comparing the message digest generated from
the acquired update program and the message digest
obtained by decrypting the acquired electronic
signature of the acquired update program.

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14. The method as claimed in claim 12,
15 wherein

if the acquired electronic signature of the
update program is determined to be authentic, an
electronic signature of the program stored in the
recording medium is updated together with the program
20 stored in the recording medium.

25 15. The method as claimed in claim 12,

further comprising the step of:

activating, if the acquired electronic
signature of the acquired update program and an
acquired electronic signature of an acquired
5 configuration file are determined to be authentic,
the updated program in accordance with the acquired
configuration file.

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16. An update recording medium that is
used with the image forming apparatus as claimed in
claim 4, the update recording medium storing the
15 update program and the electronic signature thereof.

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17. An image forming apparatus,
comprising:

a storing unit that stores a program in
accordance with which the image forming apparatus
operates;

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an acquiring unit that acquires an update

program from an external source; and

an updating unit that updates the program stored in said storing unit using the update program acquired by said acquiring unit,

5 wherein

after updating the program stored in said storing unit, said updating unit determines whether an electronic signature of the updated program is authentic and, if the electronic signature of the
10 updated program is authentic, said updating unit maintains the updated program.

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18. The image forming apparatus as claimed in claim 17,

wherein

said updating unit determines whether the
20 electronic signature of the updated program is authentic by comparing a message digest generated from the updated program and a message digest obtained by decrypting an electronic signature of the updated program.

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19. The image forming apparatus as claimed
5 in claim 17,

wherein

said updating unit updates the program
stored in said storing unit with the update program
acquired by said acquiring unit, and updates an
10 electronic signature of the updated program stored in
said storing unit with the electronic signature of
the update program acquired by said acquiring unit.

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20. The image forming apparatus as claimed
in claim 17,

wherein

20 said acquiring unit is an update recording
medium setting unit and the external source is an
update recording medium to be set in the update
recording medium setting unit, the update recording
medium storing the update program and the electronic
25 signature of the update program.

5 21. The image forming apparatus as claimed
in claim 17,

 wherein

 said acquiring unit is a receiving unit
that receives the update program and the electronic
10 signature of the update program from the external
source via a network.

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 22. The image forming apparatus as claimed
in claim 17,

 wherein

 said storing unit further comprises a
20 recording medium setting unit and a recording medium
set therein, the recording medium storing the program.

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23. The image forming apparatus as claimed
in claim 17, further comprising:

an activating unit that determines whether
the electronic signature of the updated program and
5 an electronic signature of a configuration file
related to the updated program are authentic and, if
the electronic signature of the updated program and
the electronic signature of the configuration file
related to the updated program are determined to be
10 authentic, activates the updated program,

wherein

said acquiring unit further acquires a
configuration file and an electronic signature
thereof from the external source; and

15 said activating unit determines whether the
electronic signature of the updated program and the
electronic signature of the configuration file are
authentic and, if the electronic signature of the
updated program and the electronic signature of the
20 configuration file are determined to be authentic,
activates the updated program in accordance with the
configuration file.

24. The image forming apparatus as claimed
in claim 23,

wherein

5 said activating unit determines whether the
electronic signature of the updated program is
authentic by comparing a message digest generated
from the updated program and a message digest
obtained by decrypting the electronic signature of
10 the updated program.

15 25. The image forming apparatus as claimed
in claim 23,

wherein

 said activating unit determines whether the
electronic signature of the configuration file is
20 authentic by comparing a message digest generated
from the configuration file and a message digest
obtained by decrypting the electronic signature of
the configuration file.

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26. The image forming apparatus as claimed
in claim 25,

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wherein

the electronic signature of the
configuration file is generated by encrypting a
message digest of the configuration file and
identification information of the recording medium.

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27. The image forming apparatus as claimed
15 in claim 26,

wherein

the identification information of the
recording medium is a serial ID of the recording
medium.

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28. A method of updating a program stored
25 in a recording medium of an image forming apparatus,

comprising the steps of:

acquiring an update program from an
external source;

updating the program stored in the
5 recording medium using the acquired update program;

determining whether an electronic signature
of the updated program is authentic; and

maintaining, if the electronic signature of
the updated program is determined to be authentic,
10 the updated program.

15 29. The method as claimed in claim 28, the
step of determining whether the electronic signature
of the updated program is authentic further
comprising the steps of:

generating a message digest from the
20 updated program;

obtaining a message digest by decrypting
the electronic signature of the updated program; and

comparing the message digest generated from
the updated program and the message digest obtained
25 by decrypting the electronic signature of the updated

program.

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30. The method as claimed in claim 28,
wherein

an electronic signature of the program
stored in the recording medium is updated together
10 with the program stored in the recording medium.

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31. The method as claimed in claim 28,
further comprising the step of:

activating, if the acquired electronic
signature of the updated program and an electronic
signature of a configuration file are determined to
20 be authentic, the updated program in accordance with
the configuration file.

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32. An update recording medium that is used with the image forming apparatus as claimed in claim 20, the update recording medium storing the update program and the electronic signature thereof.

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